FY 2011 Defense Requests

Advanced Electromagnetic Location of IEDs Defeat System: $4.4 million from Air Force, RDT&E for the University of Toledo for development of an IED defeat system.

The Advanced Electromagnetic Location of Electronic Devices (AELED) technology being enhanced through the project has been demonstrated as an effective technology to counter the threat by Detecting, Identifying and Geolocating IEDs in a manner heretofore not possible.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Alternative Energy Ground Vehicle - Power Grid Interface Program: $7 million from Army RDT&E for the University of Toledo for
the evaluation of alternative energy applications related to vehicle to grid and grid to vehicle energy transfer to reduce energy consumption and improve efficiency.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Atomized Magnesium Domestic Production Design and Development (AMDP): $3.2 million from Army, RDT&E for the University of Toledo for the Program Executive Office for Ammunition (PEO Ammo) at ARDEC, which has a strategic interest in prototyping and developing smart cost effective technology for atomize magnesium (Mg) production. This program will provide a new source of magnesium powder for DoD and new jobs for Elmore, Ohio.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Camp Perry Army National Guard, Base Facility Independence: $2.75 million from

Army, RDT&E for the Ohio National Guard possesses over four million square feet of facilities.

Utility costs account for 30% of the state budget.

The Ohio National Guard has reduced consumption of non-renewable energy resources, but much of the dollar savings have been overcome by increases in energy costs. This project will enable to Guard to realize cost savings for decades to come and to generate renewable energy to further reduce the consumption of non-renewable energy statewide.

The entity to receive funding for this project is: Ohio National Guard, 2825 W. Dublin Granville Road, Columbus, OH 43235

Camp Perry Staff Training Program: $1.85 million from Operations & Maintenance, Army National Guard for Camp Perry National Guard Base for a staff training program for individuals and units being tasked to fill joint staff positions and requirements within various combatant command, state Adjutant General and National Guard Bureaus staffs.

Education and training are the only viable options to provide the skill set needed for National Guard personnel and the Camp Perry Staff Training Program will provide a training and education resource with training conducted at Camp Perry, Ohio prior to deployment.

National Guard students will attend from all 54 States and Territories.

The entity to receive funding for this project is: Ohio National Guard, 2825 W. Dublin Granville Road, Columbus, OH 43235

Center for Solar Electricity and Hydrogen: $5 million from Air Force, RDT&E for thin film research focusing on increased efficiency and alloy material improvements for tandem solar cell applications in four areas: 1) large-area PV cells and modules on flexible substrates; 2) Developing novel wide band gap materials for tandem cells through guiding computations 3) Developing 3rd generation PV cells such as quantum dots, nanotubes or inorganic/organic hybrids; and 4) Exploring PEC cell technologies with an emphasis on hydrogen generation.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Combat Mental Health Initiative: $3 million from Army, RDT&E the objective of this study is to evaluate predictors of resilience and risk factors for PTSD, both cross-sectionally and longitudinally, before, during, and after deployment for the Ohio National Guard (ONG). While it is clear that soldiers develop PTSD due to combat trauma, it is not clear why the majority who experience a trauma do not develop PTSD. This long-term project will study the same 3,000 members of the Ohio National Guard for 10 years to answer question.

The entity to receive funding for this project is: University Hospitals of Cleveland, 10524 Euclid Ave, 12th floor, Cleveland, OH 44106

Composite Armor Material: $5.2 million from Army, RDT&E for Great Lakes Research Center for the development of armoring concepts that meet weight reduction goals through materials with higher mass efficiencies while reducing material processing costs. In response to requirements for high-strength, lightweight, low cost composite materials for armor applications, this program will demonstrate the ability to produce small hollow shapes (spheres) of various metal alloys including maraging and stainless steel and encapsulate them in an alloy such as magnesium.

The entity to receive funding for this project is: Great Lakes Research Center, 4750 W Bancroft Road, Toledo, Ohio 43615

Development of Dendritic Cell Targeted Immunotherapeutic: $1.5 million from Defense Wide, RDT&E this project will lead to the development of a new class of immune-stimulatory drugs and vaccines. This will provide an opportunity to commercialize prototypic drugs and to transfer some of the newly developed technologies and lead compounds to pharmaceutical and biotech companies. Such business efforts should place the economy in a highly competitive position in the newly emerging field of immunostimulatory drugs. Moreover, our final products will reduce health care costs and improve the resistance to infectious diseases of general US populations, thereby facilitating the national economic growth.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Enhanced Detection Adjunct Processor (EDAP): $5 million from Navy, Other

Procurement for the University of Toledo for the EDAP improves the capability of existing surface search radar systems through an advanced computer processor and software permitting radars to operate in moderate to high sea states by eliminating sea-return clutter which masks radar returns from small surface targets. EDAP responds to Navy requirements and will aid Navy ships in self defense, safety of navigation, anti-piracy and defense against attacks by small boats such as the one that attacked the USS Cole in October 2000.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Friction Stir Welding of Armored Vehicles: $4 million from Army, RDT&E the funding would facilitate the development of complex process parameters and specifications required to join metal structures of armored vehicles, to include but not limited to, Expeditionary Fighting Vehicle (EFV), and Future Combat Systems (FCS) vehicles at the General Dynamics Land Systems (GDLS) managed Joint Systems Manufacturing Center (JSMC) located in Lima, Ohio.

The entity to receive funding for this project is: Manufacturing Advocacy and Growth Network (MAGNET) 1768 East 25th Street, Cleveland, Ohio 44114

Geospatial Airship Research Platform (GARP): $6 million from Army, RDT&E for Persistent Elevated Solutions (PES) for technology development relating to HALE communications and surveillance. The project provides equipment and field experience for courses taught on payloads, power systems, and environmental sensing at the Universities of Toledo, University of Cincinnati, and Ohio University.

The entity to receive funding for this project is: Persistent Elevated Solutions, 4920 Milan Road, Unit 1, Suite 313, Sandusky, Ohio 448 70

Hotblox Lightweight Body Armor Materials: $2.5 million from Army, RDT&E for material development to meet the ongoing urgent operational need to reduce current body armor weight in order to increase the agility, mobility and protection of troops.

This program uses a materials science approach to armor design and provides for a lighter

weight, a lower cost individual protective system that provides increased protection, ballistic efficiency and a multi-hit capability.

This program's demonstrated ballistic performance is 10% lighter than current systems in initial testing and has the potential to be 20% lighter than current systems.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Industrial Design, Integration and Innovation Center: $8 million from Air Force, RDT&E for the development of a shared facility that can be used as a prototype for a next generation System Integration Laboratory (SIL) represents an opportunity for tax payers.

The developed capability will complement traditional SIL facilities in its orientation for collaboration and multi-organizational use.

The entity to receive funding for this project is: Advanced Virtual Engine Test Cell (Avetec), Inc., 4170 Allium Ct, Springfield OH 45505

Inter-base Energy Independence: $4 million for the 180th Fighter Wing from RDTE, AF for Phase IV of the base energy independence project for the 180th Fighter Wing at Toledo Express Airport. The project will complete the one mega-watt solar field and integrate the energy systems of the 180th Fighter Wing and the 983rd Engineer Battalion Headquarters.

The entity to receive funding for this project is: 180th Fighter Wing Ohio Air National Guard, 2660 S Eber Rd, Swanton, Ohio 43558

Ionized Gas RF Shield: $5.2 million from Air Force, RDT&E for Great Lakes Research Center for the development of an ionized gas based

RF shielding. RF shielding is necessary to protect personnel and electronic equipment form RF and EMP blasts.

The proposed ionized gas array will allow low cost fabrication of complex near net shape shields that protect against HPM attack. The shields are unique in that they may be selectively enabled or disabled to allow RF communication
through the shield when desired.

The entity to receive funding for this project is: Great Lakes Research Center, 4750 W Bancroft Road, Toledo, Ohio 43615

Lightweight Small Arms Technologies (LSAT): $4 million from Army, RDT&E for the University of Toledo for the LSAT program, which aims to develop weapons and ammunition at a significant weight reduction compared to current weapons and ammunition without sacrificing performance.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Mitigating RoHS Lead-Free Issues in Aerospace Circuit Board Manufacturing: $2 million from Air Force, RDT&E in 2003 the E.U. eliminated hazardous materials,including lead, from electronics. This eliminated 75%-85% of commercial-off-the-shelf components suitable for military and aerospace use. Many companies have begun using RoHS-compliant (lead-free) materials, such as tin. Electronic components using tin have sometimes been affected by a phenomenon called "tin whiskering", which causes product failure. The project will develop and test tools to solve tin whiskering.

The entity to receive funding for this project is: Lorain County Community College, 1005 Abbe Road North, Elyria, Ohio 44035

Multi-Campus Base Facility Energy Independence, Toledo Armory: $5 million from Army, RDT&E for the 323rd

Military Police Company, Ohio Army National Guard for the energy integration of its three campuses and allow it to save limited dollars from utility expenditures, permitting the National Guard to put more resources into facilities maintenance, thereby improving the training conditions of our members and enhancing individual and unit readiness.

The entity to receive funding for this project is: 323rd Military Police Company, Ohio Army National Guard, 925 Research Drive, Toledo, Ohio 43614

Multi-functional Bone Cements: $1.5 million from Army, RDT&E for Developing a multifunctional calcium phosphate based cement for repairing complex orthopedic/dental injuries. Cement could be used in treating cranio-maxillofacial and spinal injuries. The compositions are robust and can be used in the battlefield. They can also be used in the local delivery of antibiotics and/or agents in tissue engineering of bone. The idea is to be able to repair a wide variety of bone injuries, which ill result in a faster treatment protocol for injured troops.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Northern Ohio Integrated Command Operations Program (NOICOP): $6 million from Army, RDT&E the U.S. Army is executing a program called Project National Shield (PNS). This program addresses the ability of the Army to meet its civil support mission and to provide critical components of homeland defense. The program develops processes and protocols to improve the ability to communicate with Federal, State and local jurisdictions as it relates to local first responders. The program is deploying technologies in the field to refine and develop an architecture for Army communications.

The entity to receive funding for this project is: Lucas County Emergency Services, 2144 Monroe Street, Toledo, Ohio 43604

Port of Toledo Shipyard Improvements: $10 million from General Provisions for the Toledo-Lucas County Port Authority for improvements to the Port of Toledo and the Toledo

Shipyard.

The entity to receive funding for this project is: Toledo-Lucas County Port Authority, One Maritime Plaza, Toledo, Ohio 43604

Product Support Integrator (PSI) Capability: $4 million from Navy, RDT&E for the University of Toledo for Product Support Integrator Capability which will improve lifecycle planning and increase business process efficiencies in the Navy by;
decreasing sparing and transportation requirements;
optimizing engineering, modernization, and logistics support processes to meet fleet objectives at an affordable cost; reducing the logistics footprint associated with Surface Navy weapon systems; and, improving the quality and timeliness of readiness-oriented assessments.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Renewable Hydrocarbon Fuels for Military Applications: $5 million from Air Force, RDT&E in order to meet DOD's requirement for 50% alternative fuels by 2016, multiple new sources must be identified to produce sufficient quantities of oil. This program examines the feasibility of producing algal oil for aviation fuel in Ohio which could then be a benchmark for additional sites elsewhere in the Continental U.S.

The entity to receive funding for this project is: Center for Innovative Food Technology (CIFT), 5555 Airport Highway, Ste 100, Toledo, Ohio 43615

RQ-7 Shadow UAV Electric Propulsion Augmentation and Controller: $4.5 million from Army, RDT&E for the University of Toledo for the RQ-7 Shadow, an unmanned war-fighting air-vehicle, that is widely used by the U.S. Army and Marine Corps for reconnaissance, surveillance, and battle damage assessment. It is currently deployed in Iraq and Afghanistan to gather information on various enemy troop activities. This project will develop an electric propulsion system and a militarized digital engine controller that would supplement the current internal combustion engine.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Small Adaptive Cycle Turbine Engines: $4.5 million from Air Force, RDT&E for the Small Turbine Institute in Nothwest Ohio as it continues efforts relating to the development of technology and its demonstration for small turbine engines and conducting the Excentric Core engine demonstrator testing of these and related technologies previously funded and undertaken by the ESSP initiative and subsequent Excentric Core engine demonstrator testing in pursuit of a Small Adaptive (Convertible) Cycle Engines.

The entity to receive funding for this project is: The University of Toledo, Small Turbine Institute, 2801 W. Bancroft Street, Toledo, Ohio 43606

Superconductor Hybrid Electric Drive Program: $6 million from Navy, RDT&E for the University of Toledo for development of
the Hybrid Electric Drive (HED).

A superconductor motor, in conjunction with a programmable electric drive, can easily operate as both a motor and a generator.

Instead of a 1.6MW motor envisioned by the baseline program, a larger 3MW motor and

drive system could be developed that both addresses the current DDG-51 requirements but also make allowances for the updated DDG-51 design in the Navy's ship building plan.

These ships, called DDG-51 (Flight III), are expected to require more electric power than the ship can produce with its current gas turbine generators.

This program would design and build a 3MW superconductor test motor and drive system in preparation for a Navy production program in the FY2012/13 period.

The entity to receive funding for this project is: The University of Toledo, 2801 W. Bancroft Street, Toledo, Ohio 43606

Teamlinc Secure Mobile OSLR System: $2.12 million from Army, RDT&E since existing

MANET protocols are not secure enough for secret or top secret military networks, Teamlinc will integrate Identity (ID) Based Key Management into open source link routing (OSLR). The proposed ID Key Management utilizes cross-enterprise security architecture and associated process mechanisms for generating, controlling and distributing authentication certificates and associated security policies, developed with the Navy (SPAWAR).

The entity to receive funding for this project is: Western Reserve Defense Research Labs, Inc, 959 Bassett Road, Westlake, Ohio 44145

Turbine Engine Control and Electric Power Generation Capability for the VAATE Convertible Adaptive Cycle Excentric ™ Core Engine: $4.1 million from Air Force, RDT&E the VAATE program's objective is to develop turbine engines and enabling technologies which provide a 10X improvement in turbine engine capability to cost.

The project will provide enabling digital engine and system management control technologies for the small turbine engine segment (UAVs), allows more rapid development of Vertical Takeoff and Landing engine technologies, and provides electrical power to the UAV without the need for separate starters and electric power generators thereby reduce weight and cost and improving reliability.

The entity to receive funding for this project is: The University of Toledo, Small Turbine Institute, 2801 W. Bancroft Street, Toledo, Ohio 43606